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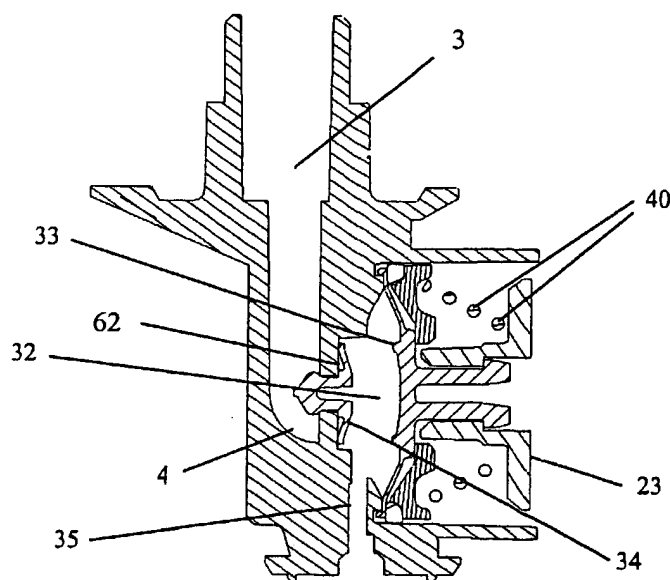
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[Continued on next page]

(54) Title: DIAPHRAM METERING CHAMBER DISPENSING SYSTEMS



(57) Abstract: This invention describes a method and apparatus for a dispenser assembly (1) suitable for dispensing reagent in an automatic system. In embodiments, the present invention may include a metering chamber (32) that accurately controls the amount of fluid dispensed. In other embodiments, the amount of fluid may be controlled by the action of a flexible diaphragm (33), which may be assembled into a cavity of a dispenser housing creating a metering chamber. In another embodiment, a volume created by a metering chamber may determine the volume of dispensed fluid. When a diaphragm is compressed from its free or uncompressed position (36) to an inverted or compressed position (37), it may substantially conform to the inner surface of the metering chamber. Fluid enters a metering chamber through an inlet unidirectional valve (34) and exits a metering chamber through an outlet unidirectional valve (25).

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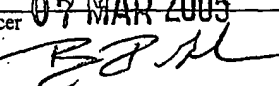
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A. CLASSIFICATION OF SUBJECT MATTER												
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US CL : 422/100, 102, 103, 81; 436/180, 178; 73/863.72, 863.73, 863.84, 863.86												
According to International Patent Classification (IPC) or to both national classification and IPC												
B. FIELDS SEARCHED												
Minimum documentation searched (classification system followed by classification symbols) U.S. : 422/100, 102, 103, 81; 436/180, 178; 73/863.72, 863.73, 863.84, 863.86												
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched												
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Continuation Sheet												
C. DOCUMENTS CONSIDERED TO BE RELEVANT												
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.										
X, P	US 6,644,944 B2 (KARP) 11 November 2003, entire document	1, 2-3, 6, 7-12, 14, 16-18, 21, 31, 37-47, 50-51, 58, 59, 64, 68-71, 74, 77, 82-102, 104, 106-112, 119-121, 127-132, 138-145, 147-149, 152-154, 158-159, 164-169										
X	US 2002/0098122 A1 (SINGH et al.) 25 July 2002, entire document	2-3, 6-12, 14, 16-18, 21, 31, 37-46, 58-59, 61, 64-65, 68, 74, 82-89, 91-98, 106-109, 120-121, 127-131, 138-143, 148-149, 152, 158-159, 164-169										
A, P	US 2004/0063217 A1 (WEBSTER et al.) 01 April 2004	1, 7, 11										
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.												
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer Brian Gordon  Telephone No. (571) 272-1700										

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International application No.
PCT/US04/18642

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, P	US 2003/0143754 A1 (LUM et al.) 31 July 2003	1, 7, 11
A	US 2002/0127146 A1 (BERGH et al.) 12 September 2002	1, 7, 11
A, E	US 6,848,462 B2 (COVINGTON et al.) 01 February 2005	1, 7, 11
A	US 5,947,167 A (BOGEN et al.) 07 September 1999	1, 7, 11
A	US 5,162,237 A (MESSENGER et al.) 10 November 1992	1, 7, 11
A	US 4,515,127 A (WELKER) 25 June 1985	1, 7, 11

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International application No.
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Continuation of B. FIELDS SEARCHED Item 3:

East

Keywords: unidirectional valve, one-directional flow valve, plunger piston, diaphragm, metering, deflection, compressible, chamber, reservoir, staining, check valve, one way valve, flexible, plunger, piston